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THE GENESEE FARMER.

SATURDAY, SEPTEMBER 1, 1838.

WOOL.

Notwithstanding the great dissimilarity in appearance, chemical examination has made it certain that the nails, hoofs, horns, hair, and wool of animals is substantially of the same substance and nature; and the texture and hardness of the skin of animals, as exemplified in what is termed raw hide, proves that this also is separated from the others by very slight shades of difference.—That the horn of the ox is made up of elongated fibres or hairs, is obvious to every one as they can be clearly traced in the structure; that it is so in those of other animals is probable from the examination of those of the deer and giraffe in which the hairs can be traced into the covering of the horn; and from the the fact, that the horns partake in a greater or less degree of the nature of the hairy or wooly covering, being smooth, or curled and waving, in almost exact proportion as these are so. To be convinced of this, it is only necessary to compare the horn of the hairy or long wooled animals, such as the Angora goat or the wild sheep of the Rocky Mountains, with fine wooled, or silken haired ones, as the Saxon or Merino sheep. The straight or wavy appearance of the first kind of horns, and the short curls and sweeping curves of the last will be at once apparent.

Wool derives its greatest value from the quality of *felting* which it possesses in a degree superior to almost any other substance. Owing to this quality, wool can be readily formed into cloth, and when subjected to the process of fulling as it is termed, the cloth can be rendered of any desirable thickness. This quality is owing to such a conformation of the fibre as to allow them to slide freely over one another in one direction, while in the other, they cannot move at all. This property may be perceived at once in a common hair, which, placed between the fingers, and these slipped upon it, invariably moves in one direction, always advancing in the direction of the root of the hair, and the same is the case with the fibre of wool. Had wool been destitute of the felting quality, it might indeed have been made into cloths, as silk, linen, and cotton now are, but the property of thickening by any operation subsequent to weaving would have been wanting, and it would have been inapplicable to a multitude of purposes in the arts to which it now seems indispensable.

The particular formation of the fibre of hair or wool that gave them this peculiar quality of felting, (and some wools possess this property in a far greater degree than others,) has given rise to much speculation, and been the subject of much microscopic investigation. M. Monge, a French chemist, well known for his scientific researches and discoveries, was one of the first to advance a correct opinion on the subject; and he appears to have arrived at the result more from reasoning on what must be the actual structure of wool to possess its well known qualities, than from any superior facility for observation.—He asserted, "that the surface of each fibre of wool is formed of lamellæ, or little plates which cover each other from the root to the point, pretty much in the same manner as the scales of a fish cover that animal from the head to the tail, or like rows placed over one another, as is observed in the structure of horns;" and he accounts for the felting process in the following way:—

"In making a felt which is to constitute the body of a hat, the workman presses the mass with his hands, moving them backwards and forwards in various directions.—This pressure brings the hairs or fibres against each other, and multiplies their points of contact. The agitation gives to each hair a progressive motion towards the root; but the roots are disposed in different directions—in every direction; and the lamellæ of one hair will fix themselves on those of another hair, which happens to be directed a contrary way, and the hairs become twisted together, and the mass assumes the compact form which it was the aim of the workman to produce. * * * If the wool is in cloth and subjected to the process of felting, the hairs which compose one of the threads, whether of the warp or the wool, assume a progressive movement; they introduce themselves among those of the threads nearest to them, and thus by degrees all the threads become felted together, the cloth is shortened in all its dimensions, and partakes both of the nature of cloth and felt."*

The great improvement which within a few years has taken place in the construction and application of the microscope, has reduced to a certainty what with the French philosopher was only a probable deduction. It has shown that the hair, wool, or fur, of animals differs very remarkably in its appearance, and consequently in its adaptation to useful or manufacturing purposes. Mr. Youatt, of London, was the first to demonstrate satisfactorily that wool possessed the laminated form ascribed to it by M. Monge. A fibre of Merino wool was submitted to a microscopic power of 300 (linear,) the instrument by Mr. Powell, and the appearance is thus described by Mr. Youatt:

"The fibre thus looked at assumed a flattened riband-like form. It was of a pearly grey color, darker towards the centre, and with faint lines across it. The edges were evidently hooked, or more properly, serrated—they resembled the teeth of a fine saw. They were somewhat irregular in different parts of the field in view, both as to size and number. The area of the field was now ascertained; it was one-fortieth of an inch in diameter. * * * By means of the micrometer the number of serrations in an inch was ascertained and found to be 2400. Its actual diameter was proved to be the 750th part of an inch."

Though the lamellæ were not so distinct on the Merino fibre as on that of the bat, yet the cone-like points were distinctly visible; forming a series of cup-like indentations, with their projecting edges pointing from the root to the point.

A fibre of Saxon wool was next subjected to observation. It was evidently finer than the Merino, being only one 840th part of an inch in diameter. The serrations are as distinct, but more numerous, being 2720 in an inch. The greater number of serrations, with equal prominence when compared with Merino, accounts for its superior qualities in felting.

The fibre of the South Down, when examined in the same instrument presented, according to Mr. Youatt, the following appearance. "The fibre is clearly larger; it is the one 660th part of an inch in diameter. The serrations differ in character; they are larger, but they are not so acute, they almost appear as if they had been rounded; they have a rhomboidal, and not a hooked character, and they are evidently fewer in number in the same space.—There are 2080 serrations in an inch, or 640 less than the Saxon." The South Down is a valuable wool, but its felting power is inferior, and is consequently little used in the manufacture of the finest broadcloths.

The improved Leicester, as the next most valuable wool, was submitted to examination, and the character of the serrations were found to agree with its diminished felting powers.

"The fibre was found to be one 500th of an inch in diameter, and the number of serrations were 1860 in the space of an inch. The serrations or lamellæ are superficial, irregular, differently formed in different parts, a few like small spines running along the surface of the fibre, while other prominences were rounded.

The Merino, Saxon, South Down, and Leicester, comprehending the most valuable of the wools, and the two last being the kinds lately imported into this country to a considerable extent, for the purpose of crossing with the American breeds of the two first; this notice of them, showing their relative fineness and felting qualities, may not be unacceptable or useless. In concluding his microscopical examination of wool, Mr. Youatt arrives at the following conclusions:

"There can no longer be any doubt with regard to the general outline of the wooly fibre. It consists of a central stem or stalk, probably hollow, or porous, and possessing a semi transparency not found in the ordinary hair. From this central stalk there springs at different distances, in different breeds of sheep, a circle of leave-shaped projections. In the finer species of wool, these circles seemed at first to be composed of one indented or serrated ring; but when the eye was accustomed to them, this ring was resolvable into scales or leaves. In the larger kinds, the ring was at once resolvable into these scales or leaves, varying in number, shape and size, and projecting at different angles from the stalk, in the direction of the leaves of vegetables, from the root to the point. * * * The conclusion seems to be legitimate, and indeed inevitable that the shape and position of these lamellæ or leaves, is internally connected with, or in fact, that they give to the wool the power of felting or combination, and regulate the degree in which that power is possessed."

We may add here that after a careful series of experiments and examinations with one of Raspail's excellent Parisian microscopes, we are convinced that Mr. Youatt's description and delineations, are in the main correct;—and his conclusions such as are narrated by the facts elicited from observation.

After fineness, the goodness of wool is mainly depending on two qualities, *trueness* and *soundness*. Manufacturers have long known that some wools were very unequal in the fibre, in some places being so fine or attenuated as to break in working, and, therefore, cause much of it to be lost in the several processes of working. The microscope shows that in most wools the fibres are the smallest in the middle, or rather that the outer and inner extremeties are the largest, the shrinking in most cases being nearest the root; though in some specimens of wool no such difference of size is perceptible. If several such indentations occur, or if the middle fineness of the fibre is too great, the wool is said to lack trueness, and is a decided fault in the eye of the manufacturer. The cause of this inequality was for a long time not understood, but repeated experiments and observations have shown, that the fibre of the wool serves as a chronological register of the health and state of the animal, and the temperature to which he is exposed. So exactly does the wool agree in form with the treatment it receives, that Dr. Anderson has termed wool a self registering thermometer, and perhaps the best idea of the manner in which this effect on the fineness of the wool is caused, may be gained by supposing the skin to be a species of plate pierced like a wire drawers, and the size of the wool depending on the orifice through which it is forced. If the animal is in a healthy state, in good order, and kept in a proper temperature, the wool will be of equal trueness, or fineness, whatever may be the kind. When, however, the sheep is in ill health, is very poor in flesh, or exposed to fluctuations of high and low temperature, the wool will be unequal, and of course its value much diminished for the manufacturer.

The food of sheep, or the state in which they are kept, has a very great influence on the qualities of the wool.—It was a charge brought against Mr. Bakewell, and reiterated against Mr. Ellman, the great improvers of the Leicester and South Downs, and it was one they did not in the main deny, that the wool was sacrificed to the carcase, or in other words, that the rich pasture and fat state in which these sheep were kept was incompatible with great fineness of fleeces; and Mr. Bakwell, in his examination before the House of Lords, stated he had no doubt that 'fine wools might be grown on rich pasture lands, by overstocking them, and preventing them from obtaining more nourishment than they had been occasioned to.' The size of the fibere may in part be depending on the abundant sup-

* Annal. de Chimie, vol. vi, page 300.

ply of yolk which it receives. Lord Sommerville says, "the wool of our merino sheep after shear time, is hard and coarse to such a degree as to render it impossible to suppose that the same animal could bear wool so opposite in quality compared to that which had been clipped from it in the course of the same season. As the cold weather advances, the fleeces recover their fineness, and softness."

Wool growers are generally aware that the quality as well as the quantity of wool, produced by a sheep, deteriorates with age, and that wool from old sheep is difficult to spin, and injures the manufacture in which it is employed. Mr. Succock, on the woolen manufacture, says:—

"The yolk, or nutriment of the wool, lessens in quantity after the sheep, and especially the ewe, is six years old; and to the decrease of the yolk, there soon follows a hard, inelastic, unyielding character of the wool, that renders it useless for several purposes for which the younger, and especially the wether wool is sought. This old wool, 'dies in the bowl,' or in other words, it is so destitute of the oily matter so essential to wool, that it sinks in the water in which it is washed, and acquires there a shrivelled and dead-like appearance."

The farmer then, who grows wool, should be careful to keep no sheep until they are old; to keep them in good, clean pastures, not rich or rank; to see that they are in good health, and in good order, but not too fat; and finally, that the temperature be as equal as possible the year round; in the summer furnishing them with shades from the burning sun, and in the winter with efficient protection from the piercing cold.

The engraving represents some of the kinds of wool noted above, and gives a very good representation of the magnified appearance of a fibre, seen as a transparent or an opaque object. They are copied from Mr. Youatt's excellent work on sheep, a work of the greatest practical value, and which should be in the hands of every wool grower.

Fig. 34. 35. 36. 37. 38. 39.

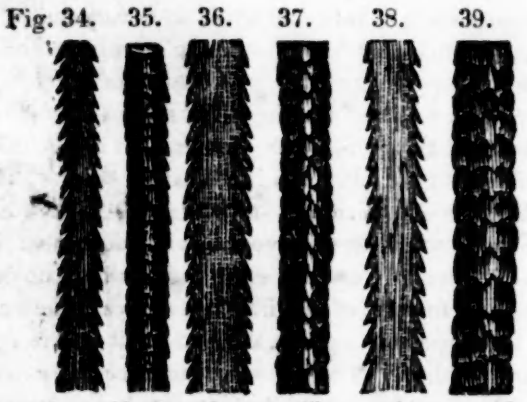
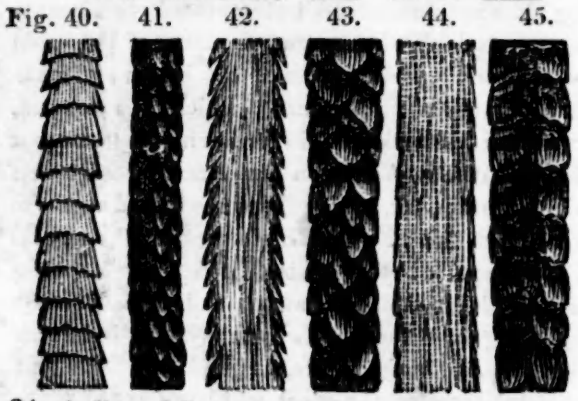


Fig. 40. 41. 42. 43. 44. 45.



34. A fibre of Saxon wool as a transparent object.
35. do. opaque.
36. do. of picklock Merino.
37. do. opaque.
38. do. of common Merino.
39. do. opaque
40. do. of South Down.
41. do. opaque.
42. do. of Leicester.
43. do. opaque.
44. do. of Lincoln.
45. do. opaque.

CULTIVATION OF FRUIT.—No. 8.

The Peach and Nectarine.

The peach is usually cultivated by planting the stone in autumn, at a depth of about two inches; a small part of them grow the succeeding spring, and the remainder the year following. Cracking the stones before planting insures their growth the first season; but it is best in this case to expose them to the action of frost, during winter, mixed with sand or earth, and to defer the planting till spring. Probably their vegetation, in ordinary cases, would be accelerated if they were mixed with earth in a box, and during winter, successively subjected to the alternate action of freezing and thawing, by which the stones would be opened. If the soil be fertile, so that their growth is vigorous, they may be budded the same season; but if not, the operation must be deferred till the second. One and two years growth of the bud will render them large enough to transplant into the orchard.

The most suitable soil for the peach is a rich sandy loam; a light soil is generally preferred, but this is not indispensible, provided the ground be properly prepared. We have known this tree to succeed admirably on heavy soils, when very large holes were dug (6 or 8 feet diameter,) and filled with loose fertile soil. Peach trees, when transplanted, should not be large; a small thrifty tree, well transplanted, will in consequence of its rapid growth, produce sooner a large tree, than a larger tree, whose size has prevented the work being so well performed. For further directions, see a former number of this series on transplanting and general culture.

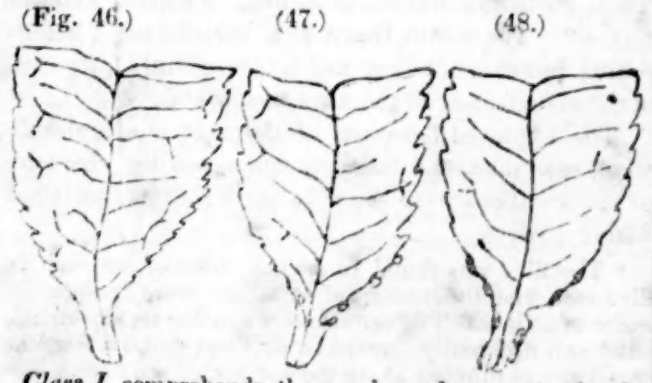
It is very commonly supposed that varieties of the peach may be continued without change, merely by planting the seed; hence many neglect their propagation by budding. The least improved varieties doubtless vary least; the common Indian peach, for instance, appears to continue nearly the same through many successive ages, though many sub-varieties of this exist. But the finest varieties, being farthest removed from the wild or natural state, are most liable to variation, and the original is consequently very rarely produced from seed. The nice shades of difference, however, which distinguish different varieties, are frequently entirely overlooked, and the error that the same sort is obtained from seed is thus confirmed.

To obtain good varieties with any degree of certainty, budding must be resorted to. Grafting rarely succeeds, and never unless performed with unusual care on such kinds as have the firmest wood. For particular directions on budding the peach, the reader is referred to the second number of this series of articles, published last winter.

When the great difference between good and bad varieties is remembered, the great importance of obtaining the *best*, must be obvious. The reputation of some which are truly excellent, has been greatly injured by the numerous errors in names which have been introduced. Not only are the names of fine varieties attached by mistake to worthless fruit, but good varieties are increased merely by planting the stones, and the original name given to them, which is still continued through successive plantings, though wide departures from the original are thus generally produced.

This confusion and misapplication of names, and consequent perplexity to the cultivator, have induced the attempt to arrange the varieties and distinctive characters, so that this inconvenience may be removed. The peach presents facilities for this purpose, not existing in other fruits. The following arrangement, which is generally adopted as the best, is from Lindley. Peaches and Nectarines, (which may be considered as one and the same fruit, the latter having smooth skins,) are separated into three general *classes*, each of which has three *divisions;* these are each separated into two *sub-divisions*, and every subdivision into two *sections;* consisting in all of thirty-six sections. Only a part of these sections contain varieties with which we are acquainted, and are only to be filled up as new ones are discovered with characters adapted to them.

(Fig. 46.) (47.) (48.)



Class I, comprehends those whose leaves are deeply and doubly serrated (or cut like sawteeth,) and having no glands on the serratures. Fig. 46.

Class II, contains those whose leaves are crenate or serrulate (or with smaller and more rounded teeth,) and having globose glands. Fig. 47.

Class III, includes all those whose leaves are crenate or serrulate, having reniform (or kidney-shaped) glands. Fig. 48.

"The form of the glands," observes Lindley, "as well as their position, is perfectly distinct; they are fully developed in the month of May, and they continue to the last, permanent in their character, and are not affected by cultivation. The globose glands are situated, one, two, or more on the footstalks, and one, two, or more on the *tips* or *points* of the serratures of the leaves. The reniform glands grow also on the footstalks of the leaves, but those on the leaves are placed *within the serratures*, connecting, as it were, the upper and lower teeth of the serratures together; their leaves, when taken from a branch of a vigorous growth, have more glands than the leaves of the globose varieties. It will, however, sometimes happen that glands are not discernible on some of the leaves, especially on those produced on weak branches; in this case, other branches must be sought for which to produce them." They are represented as rather larger and more distinct in the accompanying figures, than usually occur in a state of nature.

These classes, thus formed, are each divided into three divisions.

Div. I, embraces those which produce large flowers.

Div. II, includes those which produce flowers of medium size.

Div. III, contains those which produce small flowers.

These divisions are not so distinctly marked as the classes; the middle and small flowers only differing by the former being larger in all their parts.

The subdivisions, two in number, are determined by the fruit. The first comprehends true *peaches*, or those which have a downy skin; the second includes *nectarines*, or those which have a smooth skin, similar to that of the plum.

Each of these subdivisions are again divided into two sections; the former including the *pavies* or clingstones; the latter the *melters* or freestones.

The following synoptical table will exhibit these divisions and subdivisions as applied to the first class.

CLASS I. Leaves deeply and doubly serrated, without glands.	*Div.* 1, Large flowers.	*Sub.* 1. Peaches.	*Sec.* 1. Pavies.
			Sec. 2. Melters.
		Sub. 2. Nectarines.	*Sec.* 1. Pavies.
			Sec. 2. Melters.
	Div. 2. Middle flowers.	*Sub.* 1. Peaches.	*Sec.* 1. Pavies.
			Sec. 2. Melters.
		Sub. 2. Nectarines.	*Sec.* 1. Pavies.
			Sec. 2. Melters.
	Div. 3. Small flowers.	*Sub.* 1. Peaches.	*Sec.* 1. Pavies.
			Sec. 2. Melters.
		Sub. 2. Nectarines.	*Sec.* 1. Pavies.
			Sec. 2. Melters.

The same arrangement may be adopted with the other classes.

The following list contains some of the best varieties known in this country, arranged according to the preceding method.

SERRATED GLANDLESS LEAVES. LARGE FLOWER.

Peaches. Pavies.

Old Newington.
Early Newington, or Smith's Newington.

Peaches. Melters.

Early Anne.
Malta.
Noblesse.
Early White Nutmeg.

Nectarines. Pavies.

Scarlet Newington.
Tawny Newington.

SERRATED GLANDLESS LEAVES. SMALL FLOWER.

Peaches. Melters.

Royal George.
Belle de Vitry.

CRENATED LEAVES, WITH GLOBOSE GLANDS. LARGE FLOWER.

Peaches. Melters.

Grosse Mignonne.

CRENATED LEAVES, WITH GLOBOSE GLANDS. SMALL FLOWER.

Peaches. Melters.

Bellegard.
Teton de Venus.
George the Fourth.
President.

CRENATED LEAVES, WITH RENIFORM GLANDS. LARGE FLOWER.

Nectarines. Melters.

Fairchild's.

CRENATED LEAVES, WITH RENIFORM GLANDS. SMALL FLOWER.

Peaches. Pavies.

Incomparable.
Catharine.

Peaches. Melters.

Chancellor.
Late Purple.

Nectarines. Mleters.

Common Elruge.
Violet Hative.
Aromatic.

The following list of peaches will give a constant succession from a period immediately after wheat harvest, until autumnal frosts.

Freestone.
- Early White Nutmeg.
- Early Anne.
- Early Red Rareripe.
- Early York.
- Grosse Mignonne.
- Red cheek Malacaton.
- Malta.
- Columbia.
- President.
- Morisania Pound.

Clingstones.
- Early Newington.
- Diana.
- Oldmixon.
- Old Newington.
- Lemon Clingstone, Pine apple, or Kenedy's.
- Heath.

The peach appears to vary more in quality from the effect of climate than other fruits. Fine American varieties are pronounced worthless in England. And varieties in this country, unusually delicious in favorable seasons, are of inferior quality in unfavorable ones. Again, culture greatly effects the quality; thus, the Heath clingstone, under favourable circumstances, is an excellent fruit; but if the branches are permitted to bear full, the fruit is small and of little value.

Peach and Nectarine trees are liable to destruction from two causes, the *worm*, and the *yellows*. The presence of the worm is readily detected by the gum mixed with excrementitious matter ozing from the trunk of the tree at the surface of the ground. The best, and probably the only effectual remedy, is to scrape the earth from about the tree to admit of operating, and then with a knife to follow the holes made by the worm to their termination and destroy it. As this insect merely confines itself to the *bark*, its destruction is very easy. It rarely occurs that trees are completely destroyed by this insect, except they be small; death can only take place when the bark is eaten completely round the tree. Timely care will prevent this; the evil in fact is only to be dreaded by negligent cultivators.

The disease termed the *Yellows* is truly formidable, and appears to be exclusively confined to the peach and nectarine. Its cause has never been satisfactorily ascertained. The first indication is an irregular and *premature* ripening of the fruit, accompanied with *purple discolorations* of the flesh. This usually occurs the first season on a part of the tree only. The following season, numerous small wiry shoots grow from the larger branches, the leaves become yellow, the whole tree assumes a sickly appearance, and eventually perishes. This disease is still more to be dreaded from its contagious nature. If not checked, it commonly spreads through the whole orchard. It appears to be usually communicated at the time of blossoming by means of the pollen. But the infection may be conveyed in other ways. The bud from a diseased tree inserted in a healthy stock will cause its death, and even the use of a knife in pruning which has been previously used on a diseased tree, is sufficient to communicate the disease. Facts also greatly strengthen the suspicion that the roots of healthy trees have imbibed the contagion by mere contact with those of diseased ones. Whether it may be communicated by the *seed*, is yet undetermined. After it has once attacked a tree, there is no remedy; and to prevent it extending to others, the diseased tree should be immediately destroyed. No young trees should be planted on the same spot, as the diseased roots still remain in the soil. Coxe says, "The peach tree cannot be cultivated with success on the site of a former plantation, until some years of an intermediate course of cultivation have intervened." As it is not improbable that the pit or kernel may become infected, caution would direct that stones from diseased trees be never used for planting.

The shortness of life in the peach tree and the consequent difficulty of its culture in the vicinity of New York and Philadelphia, and in other places, appears to be chiefly owing to this disease. In Western New York, it is comparatively unknown, and great care should be used by cultivators that it be not introduced by importations of trees.

The peach tree, though generally supposed to be very short lived, when not destroyed by unnatural causes, will continue to flourish and bear for many years. Trees twenty years old and upwards are frequently seen in Western New York; and in the town of Farmington, Ontario county, are the remains of an Indian orchard, containing peach trees a foot in diameter and probably fifty years old, in a bearing state.

The curled leaf, which frequently appears on peach trees early in summer, is occasioned by frost or chilly weather. These leaves soon drop and the tree assumes a healthy appearance. This would not be worth noticing except that it sometimes occasions unnecessary alarm.

The growth of peach trees is often retarded by mildew upon the leaves. This is confined to some varieties only; especially to the Early White Nutmeg, the Early Anne, and some of the earliest varieties of the red rareripe. "When the mildew occurs," observes Floy in his edition of Lindley's Guide, "it shows that the trees require a warmer aspect and a dryer bottom; for it is evident that some kinds of peaches are more tender and delicate than others. When they are transplanted, which should be done in the spring, the tops of the roots should be shortened a little, the tree pruned carefully, and all the young shoots shortened to about one half their length, which will remedy this defect."

The length of this article precludes any further remarks on the *curculio*, which attacks the nectarine and sometimes the peach, than merely to say, that the evil may be prevented by jarring the insects from the tree on cloths spread beneath, and then destroying them; or by confining swine in the orchard, every year, during the early part of the season. The former operation should be performed when the fruit is as large as a pea, and continued daily or oftener until no more are found. The latter should be continued so long as the injured fruit continues to drop from the tree. In the next number, a fuller account of this insect will be given.

Effects of Lightning---Barns Burned.

The fact that barns, when newly filled with hay or grain, are much more liable to be struck than houses, or than such barns are at other seasons of the year, will not be disputed by any one who reads the current jouruals of the day, and should put farmers, who would not lose the results of a year's hard labor in a single hour, upon enquiry as to the means of preservation, or precaution, against such a loss. Every year furnishes multitudes of instances in which barns are destroyed by lightning; but the past month has been remarkable for the number of losses of this natnre. In looking over the destruction caused by the showers of a single day (Aug. 11,) in the few journals that come to our hand, we enumerate in different parts of the country no less than seventeen barns, beside several houses injured or destroyed by lightning, and several lives lost. The barns were mostly crammed with grain and hay, and in some of them the loss was three or four thousand dollars. In Maryland, in New Jersey, in Pennsylvania and New-York such disasters occurred, and in not a single case is there any allusion made to precaution or protection, either by lightning rods, or by insurance of the property.

Little as is known of the nature or cause of the electric fluid, enough has been ascertained to demonstrate that a column of heated vapor, whether rising from a chimney, or from a mass of vegetable matter partially heating, as almost all hay or grain when first put in a barn or stack does, forms one of the best conductors of the fluid, and one which much oftener attracts it than any other. A vast quantity of grain had been gathered into barns the week preceding Saturday, Aug. 11, and the showers of that day seemed charged with the lightning to an unusual extent. Of these barns, four were destroyed in Onondaga Co. alone; three in New Jersey within a few miles of Philadelphia; and the remainder in different parts of the country visited by some one of the many thunder gusts of that day.

Every farmer should provide rods for his house and his barns; the expense is but trifling, the security they afford very great. The points of them should be kept bright; at the places of contact with the building they should be insulated by glass or some nonconductor; and the rod at the foot should penetrate the ground so far as to reach earth always moderately damp; or should end in a double point that the fluid if conducted down the rod may readily escape. On no consideration whatever should a conductor be painted.

We have before recommended it to farmers to ensure their buildings; and we again urge it upon their notice. None are more interested in the safety of their buildings and their crops, than themselves, and every reasonable precaution should be adopted to prevent a catastrophe which in a moment may darken their fair prospects for life, if not reduce them to absolute want. By mutual insurance, companies to effect which have been formed in several parts of the state, farmers at the most trifling risque can protect one another, and no one, in the hope that he should always escape accident of such kinds, should neglect such a precaution against a total loss.—The man who has a thousand dollars worth of wheat burned in his barn, if he has an insurance of two thirds of the amount, will not be as distressed as he who has no insurance, and sees all lost in a moment.

THE STRAWBERRY.

The strawberry is one of the most healthy and delicious of fruits; can be cultivated with the greatest certainty and ease; requires but a small plat of ground to furnish an abundant supply for an ordinary family; yet how many are there of our farmers and others who needlessly deprive themselves of this excellent fruit; or suffer their children to wander over their own or their neighbor's meadows when they should be at school, trampling down and injuring the grass in pursuit of a few withered, diminutive berries, when they could easily have them with far less trouble, or expenditure of time, by garden cultivation.

Calling the other day at the house of a friend, I found his lady healthfully and profitably employed in the garden, clipping the runners of a beautiful bed of strawberries, and restraining their wild luxuriance into something like order. The bed contained perhaps two or three square rods, and though the family is a large one, she assured me that large quantities of the finest berries had been taken from it by others, after supplying them with all they could use. To pick a quart of the large delicious berries was scarcely the work of a minute, and when served up with cream, the palate asks for nothing more grateful.

Some have recommended August or September for planting out strawberry vines, but Mr. Darling, of New Haven, who is one of the most extensive growers of the strawberry in the United States, always prefers the spring, and his success would seem to be decisive on that point.

Some strawberries bear fruit very sparingly or not at all. To prevent such a result, it is necessary to pay attention to the flowers of the plants, and intermix the sexes properly, always remembering that a few of the stamen bearing plants will be sufficient for a large bed of strawberries.

The strawberry being a plant that requires considerable moisture, the soil of the strawberry bed should be well worked, and the surface occasionally stirred until the fruit begins to set, when moving the earth may be avoided to prevent dirtying the clusters. To asssit in keeping the ground cool and moist, as well as to preserve the berries clean, some growers of this fruit have, while they are bearing, kept the spaces between the rows filled with straw, which is found to answer a good purpose.

From the habits of the strawberry, it is evident that in preparing the beds for this plant, as well as in all subsequent manurings, manures which are hot and dry, should be carefully avoided. Of animal manures, that of the horse is the worst; and the finer the manure that is used the better will it be for the plants. It is also necessary, unless we choose to incur great extra labor in keeping the beds free from weeds, that the manure should be clean from seeds of every kind. In general it may be laid down as a rule, that the goodness of any particular variety of strawberry, will depend on the richness, depth of tillage, and proper moisture of the ground planted.

QUERY.

L. Tucker—I wish to make the enquiry whether evergreen trees can be successfully transplanted—and if so, what season of the year is the best for taking them up?—and also whether they are as tenacious of life as the apple, plum, &c. In short I wish to learn all that may be necessary to ensure success, in the operation. Further, do the Hickory and Chestnut bear transplanting well?

G. K. P.

Wadsworth, O., July, 1838.

In replying to the queries of our correspondent, we shall mainly rely on the testimony and experience of others, giving our authorities for the opinions advanced. If our friend wishes to become familiar with the subject of Planting, we advise him to procure the work on that subject published by the Society for the Diffusion of Useful Knowledge, as in that the most suitable soils, and the proper times for planting the various kinds of trees as well as sowing and rearing them, are fully discussed.

Sang, in his Planter's Calendar, says, "the proper time for planting the pine and fir tribes is the last of April, or the first fortnight of May. Attention should be paid that no greater number of plants be lifted from the nursery, than can be conveniently planted the same day. Damp weather is the best. When very dry, and the plants are destitue of earth at their roots, their roots should be dipped in mud (puddle) so as to be covered over by it. In all cases great care should be taken to retain on the roots all the earth that can be made to adhere to them."

Gen. H. A. S. Dearborn, probably the best authority in this country on the subject of planting, in his letter to the committee of Bangor, of April, 1838, makes the following remarks:

"In the cultivation of the coniferous trees, and especially pines, hemlocks, spruces and firs, great care must be observed in their removal, not to injure the *roots, branches,* or *bark;* and by no means should any of the branches be cut off, as is too generally done. * * * In selecting any of this class of trees for transplantation, be sure to take up such only as grow in *open and airy situations,* where they have had ample room for the extension of their far reaching lower limbs, and such as on which these limbs grow close to the ground, and by no means cut off any of them, if you wish to be eminently successful in their culture, and have thrifty and beautiful trees. * * * The best time to transplant all the evergreen trees, is later than that of the deciduous, and is just before they commence vegetation,—at the moment they make the first effort to open their leaf buds. They should not be over six feet in height; and it will be best in all cases to set them twice as near as they may be required ultimately. So doubtful is their life the first season; and if more live than are required for the ground, they can be transplanted to other places; for when they have grown two or three years, after the first taking up, they can be transplanted with greater certainty of life."

Mr. Sayers, who has the charge of planting the new Cemetery, at Worcester, Massachusetts, has given in a late No. of the N. E. Farmer, an account of his success in transplanting the white pine. He says:

"In the latter part of June I removed several trees from 10 to 15 feet in height, and I have removed several since on the same principle, and shall continue to do so for some time. The process I follow is simply to cut around the tree with a spade at some distance, in such a manner that the top surface can be taken up with the roots entire.—Holes are then dug larger than the circumference of the roots and soil taken up with the tree; the tree is then easily taken up with the soil adhereing to it, especially if on a pasture, or upon a soil where there is plenty of leaves, &c. to cover the roots. The tree is readily taken up by running a spade beneath the root, when it may be lifted into a wheelbarrow and conveyed to the hole and carefully planted, giving a plenty of water. If very dry weather succeed, it will be proper to water occasionally, and by this process, I have succeeded admirably, and believe others may do the same of transplanting evergreens in in summer. It will be best to plant, if possible, after a shower of rain, as the earth is better prepared then for the tree."

On the 12th of last May, we planted a number of trees, pine and cyprus, and notwithstanding the very hot dry weather of the succeeding months, not one has failed.—The planting we considered in the light of an experiment, the season was so far advanced; and the result has convinced us that late planting, as recommended by Gen. Dearborn and Mr. Sayers, is the best for the Evergreen kind of trees. The pines and the cyprus trees were both taken from the same swamp, and transferred to hard, dry land, without the least apparent injury. Contrary to the recommendations of General Dearborn we gave our trees a thorough pruning, cutting off most of the branches, leaving only a tuft on the top. Some of these trees were eight or ten feet in height; whether they would have done better, had the branches all been left, cannot now be ascertained.

We think, therefore, there is no danger in asserting that Evergreens can be transplanted with perfect success;—and, though experience shows they are not as tenacious of life as the apple or the plum, yet they are sufficiently so, with proper precaution, to give a reasonable certainty of succeeding in the operation of transplanting. Nothing produces a better effect in a landscape view, or among ornamental trees, than a proper distribution of evergreens, and we are confident that but little care is required to place around our dwellings such trees as the pine, balsam of fir, larch or tamerack, all of which are beautiful trees, and worthy of the place they should occupy among ornamental trees.

With regard to the Hickory and Chestnut, experiments in transplanting from the forest have not been generally successful; but where they have been grown from the seed in nurseries, and proper care used in taking up, there has been no difficulty in transplanting. The fine fibres on the roots of these trees appear to suffer more from exposure than some others, and, therefore, should always be removed with as much of the earth in which they grow as possible.

Influence of Good Example.

One of the most decided improvements in farming which the age has witnessed, is the conversion of the produce of our orchards into pork, instead of converting it into poison by distillation; and we are happy to see that this example which this country was the first to set, is likely to be extensively followed. The reports on English agriculture, given in the British farming periodicals, give numerous instances in which apples were used for making pork in that country; and ample credit for the suggestion is given to the agricultural and temperance periodicals of this country. We have been assured by well informed Englishmen, that one of the most serious obstacles, the friend of sobriety and good order was there obliged to encounter, was to be found in the excessive quantities of cider made and drank in some parts of that Island. We are pleased to hear that a reform in that respect has commenced, and there can be no doubt that in most cases a good, fat pig would more efficiently contribute to the comfort of a family, than would a hogshead of cider; certain we are that such has been the result here, and we believe will be every where, where the experiment shall be fairly tried.

Beet Sugar in Michigan.

This new state bids fair to take the lead in the manufacture of sugar. We copy the followidg paragraph from a Detroit paper:

"It will be recollected that our Legislature, at its last session, passed a law offering a liberal bounty on all beet sugar raised in this state, and an extensive company has been organized at White Pigeon for its manufacture.—We learn that the agent of this company has recently been dispatched to Pittsburg and Philadelphia, with instructions to procure a hydraulic press, and the necessary apparatus and chemicals, used in the manufacture of sugar. The beet crop in that region is said to be in excellent condition, and promises a great yield. The success of the enterprize can hardly longer be considered doubtful."

This is good news and we trust the expectations will be fully realized. Michigan, in pushing her agriculture, counting her wheat by millions, and manufacturing her own sugar, is doing more to relieve her citizens from present pressure, and place her prosperity on sure foundations, than she would be by passing ten general banking laws like her present one, or turning out a batch of wild cat banks once in six months. We rejoice to see this thriving young state on the right tack, and hope she will now, as she certainly may without difficulty, go ahead.

WHEAT IN MASSACHUSETTS.

From notices in many of the papers of the Bay State, we infer that the crop of wheat will exceed the expectations of the public generally, and go in amount, far beyond any former wheat crop of the state, certainly any one of late years. From eighteen to twenty shocks on an acre on good lands, does not appear to be an uncommon yield; and we have no doubt that a respectable draft will be made on the treasury in consequence of the offered bounty. The money, however, will be well expended; it will be distributed among the farmers of the state; it will prevent the sending abroad of perhaps two or three millions; and, more than all, it will break the belief which seems to have spell-bound the farmers of the eastern states, that they could not grow wheat. If the farmers of Massachusetts will follow the indications, and in the way pointed out in the Geological and Agricultural Surveys of that state; if they will supply to the soils the essential elements that have been drawn from it by long continued and unskilful cultivation; in short if they will apply lime and manure, they will no longer say they cannot raise wheat.

MILLET.

We have often called the attention of our readers to the importance of growing this article for hay, and we would here again impress it upon them, and especially upon those of them residing in the South, where provender is so scarce. It delights in a warm sun and sandy or loamy soil, and will grow in almost any soil naturally rich or artificially made so; may be put in as late as the middle of July, and will yield from 2 to 4 tons to the acre, according to the goodness of the land and nicety of its preparation. When we say that it may be put in as late as the middle of July, we do not recommend that the culturist should delay sowing as long as that; but only mention it in order that, if circumstances should occur to prevent an earlier putting in of the seed, that he may rely on getting a crop as late as that. If we were asked our opinion as to the *best time* for seeding it, we should say, from the 1st of May till the 1st of June. The heaviest crop we have ever raised was sown on the 14th of May.*

All ground intended for Millet, should be thoroughly ploughed and harrowed: the seed to be harrowed in, and the ground then rolled.

If hay alone be the object of the culturist, one bushel of seed to the acre is the proper quantity: if *hay* and *seed* be the object, half a bushel should be sown on that quantity of ground.

It makes a delightful hay, is highly nutritious, and well relished by all sorts of stock.—*Farmer & Gardener.*

* Last year we raised a pretty fair crop sown on the 28th July. This fact illustrates the advantage of its culture. Should the crop of grass be short, there will always be time enough after that fact may be ascertained to put in a crop of millet for hay; thus placing it always in the power of the farmer to secure a full supply of hay for his stock.

A farmer in Northampton, Massachusetts, this year cut *nine tons* of hay from 3½ acres of land.

COMMUNICATIONS.

SCIENCE OF AGRICULTURE.

It has long been matter of both regret and surprise that the pursuits of agriculture should not, ere this, have assumed that distinct form of scientifick detail to which it is well known to some, at least, they are capable of being reduced. Such regrets will be shared much more generally, by observing men, than will the surprise to which I have alluded, provided the causes that have worked and are still working the evil complained of should not prove to be either deeply or mysteriously concealed from view. That some, at least, of these are not, I shall endeavour, in the course of this essay, to show.

The various efforts that have been made, throughout our country, for the improvement of agricultural science, have been mostly directed through the operations of Agricultural Societies, and the publications of books and periodicals devoted to the subject. The former of these, as constituted, never gave much promise of lasting advantage; and I believe they have seldom accomplished more than they promised. But it is upon books and periodical publications that the greatest reliance has been placed for bringing forward agriculture, and placing it strictly among the sciences. Of the former of these the number has ever been limited, at least in our language; nor has their character often been such as the case required. Of agricultural periodicals there is, perhaps, little or no deficiency, in number; but a question may very fairly be raised how far those published are fitted to become guides to improvement. We see these publications occasionally complain that farmers denounce "book farming" as mischevious; and perhaps we shall learn, in the sequel, that this course, on their part, is not without good reason. From the uniformity with which the conductors of these periodicals devote themselves to the narration of detailed results, *without referring these to the general principles upon which they depend*, very little is added to the general stock of true knowledge, even by an extensive circulation and study of such works. The *science* of agriculture is in this way wholly omitted, and the inquirer finds only recorded results constantly multiplying upon his hands, without any means afforded him by which he can trace these up to their causes, and thus secure to himself the power of renewing or preventing such results at pleasure, in future. It is this species of knowledge that the cultivator of the soil requires: it is this, only, that can raise his pursuit to the character of a science, by ensuring given results from fixed and known data.

The presence of certain elements in soils, and the existence of certain conditions with regard to these elements, are indispensable to ensure value to the husbandman; and these are never to be learned and appreciated by mere records of results, however voluminous.

It is to *Agricultural Geology* and *Agricultural Chymistry*, only, that we can confidently look for that knowledge which shall reduce agriculture to a science, and render the pursuits of the husbandman any thing more than a succession of uncertainties; and in these branches of knowledge all general inquirers find few of their wants supplied. Davy, in England, gave the publick a work upon Agricultural Chymistry, some years ago, which has been followed by a more valuable (though still imperfect) work, from the pen of Chaptal, a French author. This work was published, in our language, at Boston, Mass. in 1835. In the department of Agricultural Geology I know of nothing, save the little we find under the head of "Economical Geology," in our various Geological Reports. A good work, in this department is much wanted: that is, if its study can be ensured, when it has been produced.

In justification of what I have said of agricultural periodicals, and even books, I might cite examples until I had filled a volume. Of the latter, the Complete Farmer, by the late Thos. G. Fessenden, of Boston, is an example, probably, as generally known as any, to agricultural readers. And what is this work, allow me to ask,—I mean the part in question—but a series of results without explained premises and of contradictions without reconciliations? In the case of periodicals, I may take an example from the files of this paper. In the "Genesee Farmer" for June 23d. 1838, is an article upon "salt, as a manure," which will serve as an illustration. The writer opens his subject with reference to the use of salt as a manure in England—as if England had a uniform soil, throughout, and then that throughout these United States both soil and climate were the same as in England—and he subsequently invites experiments with it here. To this succeeds a list of English experiments with almost every leading crop; and the results of the use of salt, upon the lands, in reference to each one is given with minute detail. Now in all this not one word is said of the kind of soil thus treated; so that the all-important element of the whole proposition is omitted. In conclusion, the writer states that "some recorded experiments may go against salt, as a manure," and he thinks, therefore, that experiments should be made, though with care, to test its efficacy! Here, then, is a specimen of the manner in which works, designated "agricultural," are composed; and in what possible way can their readers be thus assisted in acquiring knowledge? Salt, it is well known, in certain combinations, and quantities, is useful, as a manure; and it is equally well known that in other combinations and quantities, it is detrimental to vegetation. Hence the different recorded results, to which this writer alludes. Let us suppose, in order to carry out our author's suggestions, that twenty farms be treated with salt, and that in some of these the result is favourable, while in others it is detrimental to the crops. Will any information have been acquired, by all this, that can be of the least use at any other time or place? I think not: and for the reason that the experimenters would have learned nothing of the circumstances which had caused the difference. Experiments made in this way, would never have an end; and yet they would never be more certain of producing favourable results than at first: and, consequently, would add nothing to the sum of agricultural knowledge.

I have spoken of the "Complete Farmer." The compiler of that work edited the "New England Farmer," an agricultural paper, at Boston. That periodical gave frequent essays upon the value of lime, as a manure; and earnestly recommended its use, giving various directions as to the quantity to be employed and the method of application. The pages of the "Complete Farmer," also, abound in recommendations and instructions of the same kind: as, for example, at page 198 the compiler says:—"there are good farmers who differ as to the quantity of lime that is most profitably employed." And on the succeeding page he says: "great differences exist among agriculturists respecting the uses of gypsum, and the manner of its application." I cite these merely as examples of the generalization of writers. Now, to illustrate the effect of this species of publication, let us suppose one of the essays of the "New England Farmer," recommending lime, for example, as a manure, should be copied into the "Genesee Farmer." This last is published in the heart of a limestone region, but we will suppose nothing is said, in the essay, respecting different soils, and the unwary reader, supposing the recommendation equally applicable to all, applies the quantity of lime directed, to a soil in which lime is already a principal ingredient. The result brings him none of the advantages that were promised him—the crop proves to be uninfluenced, either in quantity or quality, by this expense. Ignorance of Geology and Chymistry, as applied to agriculture, prevents the operator's understanding the errours he has committed, and he denounces "book farming" as a folly of which he will never more be guilty. And, under the circumstances has he not reason for so doing? This is not a solitary example, but is cited as an illustration of what is generally true of publications of this nature; and the result, in this case, appears to me to be the legitimate fruit of such productions; and largely to justify the neglect and distrust with which they are so often treated.

The only rational and efficient remedy for all this empyricism is the application of scientifick knowledge to agricultural pursuits. Our farmers are unacquainted with the nature and composition of their soils, and yet, to make rational experiments in farming, and to ensure given results, these must be accurately understood. Nor is the task a difficult one. The eroding and dissolving powers of the elements, by reducing the various rocks exposed upon the surface of the earth, are constantly forming soils where there was none before, and as constantly modifying or removing those of previous formations. Soils, then, in the vicinity of extensive rock formations, will necessarily partake, largely, of the constituent materials of those rocks, in their composition.—Through the agency of the transporting power of running water these materials are also constantly removed to distant points, and deposited; and this is not only the case upon the banks of streams, but also upon all plains, whether extensive or not, which are spread out at the bases of mountains, or less elevated lands, down the face of which the waters from rains and from dissolved snows descend, in their course to neighbouring streams. The power of these agents, in modifying the surface of the earth, is necessarily very great, since that surface every where gives evidence of vast changes, many of which we know to be attributable to the causes in question; and we have every reason to suppose the general causes of all these changes to be in as active operation now as they have ever been, at any former period. Different materials, then, as well as different proportions of the same materials, must necessarily be found mingled in the various soils; and as both the kinds and proportions of these directly control, to a wide extent, not only the kinds but the quantities, also, of the vegetables that can be obtained from such soils, a knowledge of the means by which to determine these several elements, as well as those of every other kind, animal, vegetable, &c. found in soils, is indispensable to *intelligent* farming. Research, observation and analysis have produced a vast fund of actual knowledge upon this subject; but of what general value can this all be to the world, so long as it remains confined to a few individuals, or to learned societies? It is its general diffusion which is required; that those who till the soil may see clearly both cause and effect. When they can do this we shall hear no invectives against "book farming," any more than we now hear them against book knowledge in any other science: for it is the doubt resting upon the minds of the multitude, whether there is, or can be, any such actual knowledge, which is operating unfavourably to inquiry.

The knowledge already extant in Agricultual Geology and Chymistry not only enables its possessor to determine the present power of production of any given soil, but also to vary and improve any one, at pleasure, by such additions as its composition shows it to require: and in this way the result that may be obtained, in crops from a given tract of land, with the exception of what influence a peculiar season may exercise, can be very well known before the seed is upon the ground. This is the great point to be gained, it appears to me; and the one that should guide our efforts to improve agriculture. A passion at one time prevailed, with theorists, to find or create similitudes in the animal and vegetable kingdoms; and some folly, of this kind, is still found in what are deemed our best agricultural books. A passage from Fessenden's "Complete Farmer," page 206, I quote: "The earths are not the food of plants. They constitute the stomach, analogous to the stomach of animals, in which vegetable and animal matter is received, digested, and, with the aid of the leaves, (lungs,) assimilated to vegetable chyle and blood." Such statements may be most profitably met and corrected, perhaps, by an exhibition of the analysis of the ashes of different vegetables.

One hundred parts of the ashes of the seeds of various vegetables yielded, by analysis, as follows:

	Silica.	*Lime.*	*Alumine.*
Wheat,	48	37	15
Oats,	68	26	6
Barley,	69	16	15
Rye,	63	21	16
Potatoes,	4	66	30
Red Clover,	37	33	30

Magnesia, also, another earth, is often a consituent part of vegetables. Here, then, we see several of the earths entering largely into the composition of vegetables; in other words, according to the "Complete Farmer," these vegetables have digested their stomachs, and converted them into nourishment! The stalks of several of the grasses, &c. as wheat, rye and barley, have their surfaces composed of silex, which gives them their requisite hardness and strength; and this fact is still more apparent in the common scouring rush, the surface of whose stalks are sufficiently hard to act readily, by friction, upon wood, and even on some of the metals.

In New-England, the greater part of whose soil is formed from the degradation of mountains of primary rocks, with little lime, wheat has long since ceased, generally, to flourish. The little lime the soil originally had has been principally abstracted, and the usual manures do not contain this in sufficient quantity to supply the want. Hence, though the stalk thrives tolerably in those siliceous soils, yet the grain is shrunken and imperfect, because lime is not present in quantity sufficient to constitute 37 per cent. of the ashes of the grain. Yet rye, whose composition, as seen above, contains much more silex, of which those soils have a superabundance, and much less lime, succeeds far better. Instances are not wanting where farmers, from ignorance both of the compositions of their soils, and therefore of what was requisite for their improvement, have destroyed, for one or more seasons, the productiveness of their fields, at a great expense for what they supposed was manuring them.—We read, continually, of the excellence of marl, as a manure; but how many of our farmers know of what this marl is composed, or to what soil it is applicable? There are probably very few; and still less is the number perhaps, who are aware that in the way they find this word used in most works prepared for their instruction, it has no *definite* meaning, but is applied indifferently, to a variety of substances.

Dr. Jackson, in a letter to Prof. Sulliman, upon the Geology of Maine, relates the following: "While exploring the soils of York and Oxford counties, I was surprised to find, that, although the country appeared to be composed wholly of granite and gneiss rocks, the soil was wonderfully rich and produced admirable crops of wheat. This was not to be expected from a purely granite soil, and on more minute examination, I found that the gneiss on the sides of most of the granite mountains alternated with thin beds of limestone, from an inch to a foot in thickness, and resembling so closely the gneiss in colour as to have at first escaped my observation. This at once accounts for the fertility of the soil, for it is made up of decomposed gneiss and limestone as well as granite rocks, and hence is well adapted to the cultivation of wheat." The utility of this species of knowledge all will admit, and yet it may readily be possessed by our farmers, as well as by others, if the proper means of study be furnished them. The following *contrast* to the above I copy

from the second annual Report on the Geology of the publick lands belonging to the two states of Massachusetts, and Maine, from the pen of the same gentleman. Speaking of a farmer whom he found settled upon the banks of the Aroostook river, in Maine, Dr. Jackson says: "His first dwelling was an ordinary log hut, but since that time he has erected a handsome house, having a brick chimney, and being well glazed. He informed me that he manufactured his own bricks ,from the clay, found about one fourth of a mile below on the river. His lime, however was brought from the city of St. John, and cost him $16 per tierce! Very few of the settlers indulge in the luxury of plastered walls and ceilings, on account of the expense of lime. Yet the very rocks under their feet are excellent limestone, but they were not aware of the fact, nor did the people then know any thing of the simple process of converting them into lime. It was formerly the custom to obtain their flour from Woodstock, and it cost the people there no less than $20 per barrel, but now they generally raise their own wheat."

It seems needless to pursue this subject farther, or to multiply detailed examples, although materials are amply abundant. I have endeavoured to point attention to what I consider the retarding causes of the spread of agricultural knowledge among farmers, and also, to the remedy for this evil; and if what has been exhibited should fail to do this, better results could hardly be expected from protraction of the effort. If I have justly appreciated the question, little improvement is to be expected from the agricultural books and periodicals now before the publick, so long as their character shall remain unchanged, however extensively they may be consulted. From the repeated failures of experiments performed under directions given in these works, there is a wide-spread distrust of the existence of any actual knowledge, strictly speaking, upon this subject. To inculcate this knowledge, then, and disseminate it among that class to whom it is of the most direct value, these works must be so improved in their character as

1st. To demonstrate to their readers that definite and desired results may be ensured, in agricultural pursuits, through knowledge previously acquired; and

2d. To communicate this knowledge in a clear and explicit manner, to such as will be at the pains to acquire it, and may wish to make practical application thereof to the pursuits of culture. R. W. Haskins.

Buffalo, July 28, 1838.

REMARKS.

We are pleased to perceive that our friend 'R. W. H.' has come to our aid in enforcing the position so often advanced by us,—that a competent knowledge of the constituent parts of the soil, and their qualities, lies at the very basis of good farming;—and though his remarks on the agricultural books and periodicals of the country, may seem rather severe; and though our journal comes in for a share of his strictures, we shall not complain, since we know they were conceived in the most friendly spirit, and point out a remedy for the evils of which he complains. Our correspondent, we presume, is acquainted with the course of the Genesee Farmer, from its commencement, and if so, he is aware, that it contains a greater number of papers on the *science* of farming, than almost any other periodical in the country; and we also are aware that these very papers, some of them from men of the first attainments in the country, have, by many of our farmers been considered entirely out of place in such a journal as ours. But the number by which such papers are read and approved, we have reason to know is continually increasing; the number of enquiries into the relations which geology and chemistry bear to agriculture has greatly multiplied; and with the aid of our scientific as well as practical friends, we intend our journal shall lead the way in stimulating enquiry, as well as recording improvements.

It will be seen by reference to the article on 'Salt as a Manure,' to which 'R. W. H.' refers, that the object of the paper was simply to invite agriculturists to the observation of the qualities of this mineral as a manure, and not to attempt a dissertation on the soils to which it is applicable, a result which can only be determined by experiment. On this point, European writers appear to be as much in the dark as American ones; since in the several works from which the experiments given in the Farmer were taken, not a single reference, as the writer recollects, was made to the geological qualities of the soil in which they were made.

In urging upon farmers the necessity of paying attention to the constituent parts of the soil they cultivate, we have before presented to them the table given by R. W. H. from Chaptal, of the proportions of the several earths that enter into the composition of the seeds of some of the most important plants; and we consider the fact of such a proportion existing, a conclusive proof not only that such earths are necessary to plants, but that if any of them are materially different, either that grain which require such earth cannot be grown at all, or it will be of an inferior quality.

Unless we have greatly mistaken the wants and wishes of our intelligent practical farmers, they are not disposed to view farm reports; experiments in the cultivation of crops; articles on the general value and use of manures without reference to particular soils; the introduction of new and useful plants, or improved breeds of animals; and in short all the practical improvements in the process of agriculture, in the light in which, from his paper, it might be inferred they are seen by 'R. W. H.' If nothing is to be done for farmers until they are *all* capable of analyzing the soils they cultivate,—if the results of a successful cultivation of a particular crop ought not to be written unless by a farmer who can tell the proportions of lime, silex, and alumine, the soil contains,—if no statements of practical operations from which important inferences may be drawn should be published,—if nothing to prompt thought, stimulate enquiry, and lead to experiments, can render agricultural periodicals useful unless all they contain is scientifically and mathematically propounded, we should indeed fear for the result; but we do not think thus, and so, we are sure, does not our correspondent.

We know of nothing which has had so great a tendency to induce farmers to examine the qualities of their soils, and ascertain their probable composition, as the Geological Surveys now going on in this state, and the prompt aid which has been rendered farmers, when requested, by the gentlemen engaged in the investigation.—We rejoice in the spirit of scientific enquiry that has thus been awakened, and we are confident our correspondent will cheerfully lend his great influence to extend the feeling on this subject, as well as to give it a direction of the greatest possible usefulness. It is desirable that the labors of philosophic investigation, should be united with those of the practical cultivator, in order to instruct and benefit the mass of the agricultural community.

SHEARING LAMBS.

Mr. Tucker—The practice of shearing lambs, not those that are very small and late however, has obtained to a considerable extent in this country, and where tried, has I believe been generally approved. On my flock I have found it to produce the following good effects, without any sensibly injurious ones. Shearing the lambs has effectually freed my flock (about one hundred in number) from ticks, but one having been found on my sheep at the last two shearings—and it gives the yearling clip an even smooth surface, free from the coarse hairs and unequal locks which are usually found on the first coat of the lamb. The difference in the weight of a yearling fleece from one shorn when a lamb, or one not shorn, if any, is but very trifling, and in my opinion not to be considered a moment when compared with the advantages to be derived from the practice. If sheared at all, lambs should be sheared early, and then the wool is so grown, that no danger need be apprehended from the effect of the cold weather. I have sometimes as an experiment, sheared one side of a lamb, and left the other untouched, but at the next shearing no one would have supposed such an operation had been performed, unless a closer examination than usual of the wool was made. I have therefore been accustomed to regard the wool so cut from the lamb, as nearly clear gain, and where there was a number of them, it would be no despisable item in the profits of keeping sheep. In the following article which I copy from an Eng. publication, it appears different opinions of the practice are entertained there, from those I have expressed; and if any of your readers have made themselves experimentally acquainted with the practice and will give the results for publication, they might, while gratifying a brother farmer, be conferring a benefit on the public at large.

G. H. M.

"It is customary for many of the flock masters in Sussex (more especially for those who reside on the South Downs) to clip the wool of their lambs about the month of June, by merely shearing off the extremities of their fleeces, and by so doing the lambs appear of a larger size, and in better condition, than when completely divested of their fleeces. To this practice they are doubtless prompted, from a desire of giving their lambs a more advantageous appearance to those who annually resort thither for a fresh supply of that justly celebrated breed of sheep, (South Downs;) at the same time, it should be borne in mind by those who purchase lambs thus shorn, that their wool will be much less valuable at the succeeding shearing season, than that produced from unshorn lambs, because the latter will become teg wool (if suffered to remain until next years shearing season, and the fleeces weigh a fourth more than the produce of those animals whose wool has been clipt; and besides it will also become more valuable by 4d. or 5d. per lb. arising from its being adapted for combing purposes, whereas the wool which has been clipped, becomes stunted in its growth, lighter in weight, and consequently less valuable."

From the Quarterly Journal of Agriculture.

ON AGRICULTURAL CHEMISTRY.

BY MR. HENRY R. MADDEN, EDINBURGH.

Having paid considerable attention of late to Agricultural Chemistry, I am much astonished to find that no one (if we except the original founder of the science, Sir Humphrey Davy) has attempted to draw together all the facts which have been made known in connection with that science through the medium of the numerous periodicals, manuals, &c., which treat of agriculture and similar subjects; on which account it is totally impossible for any one engaged in the operations of the field to become acquainted with the many and valuable improvements which have been made in this art by scientific men both at home and abroad. Being at the same time fully aware that of all the agricultural periodicals this is the most valuable, and also the one which is most extensively read by practical men, I shall esteem it a great favor if its readers will give me their attention while I lay before them, as far as is in my power, a condensed view of all that has been done by science to the advancement of agriculture; which purpose, it appears to me, would be best attained by going regularly over the whole subject, and pointing out how far each and all of the various branches of this inestimable art have been, and still may be, benefitted by the labors of those devoted to scientific pursuits. This I shall endeavor to accomplish by means of a series of papers on Agricultural Chemistry; choosing that name in preference to any other, as there can be no doubt (as the sequel will amply prove) that chemistry, of all the sciences, has contributed most to the improvement of the art of cultivating the soil. Without further preliminary, therefore, I shall commence by introducing myself to my readers, and laying before them in general terms the many advantages to be derived from investivating scientifically those results, which many of them have hitherto probably regarded in a purely practical sense.

It must be obvious to all those who interest themselves about the agriculture of this country, that although much appears to have been done by various individuals towards the improvement of the different branches of this art, nevertheless the general feature of the agriculture of the kingdom, *taken as a whole*, appears, with a few exceptions, to have undergone no material change for some years past; and it is a question which naturally suggests itself, what is the cause of the great length of time which elapses between the publication of a discovery and its general adoption? Is it ignorance? some will ask. Is it disinclination? Is it obstinacy? or what is it? That each and all of these surmises may be applicable in particular cases there can be little doubt; but far be it from me to censure the class of farmers so much, as to assert that this is by any means generally the case. No! I am convinced that the cause is to be sought for elsewhere. There is an old adage, "A burnt child dreads the fire," and upon this principle, I think, a great deal of the reluctancy shown by farmers in adopting new discoveries is to be explained. It must be well known to all those connected with the operations of the field, that most of the cultivators in our country are directly dependent upon the produce of their soil for the food they eat, and it is certainly not to be expected that these men should risk a whole year's labor merely because they have *read* of a better way of cultivating their crops. If all that has been written on the subject of agriculture could be implicitly depended on, then certainly farmers would be culpably blind to their own interests in not adopting all published improvements which their means would permit. But unfortunately this is far from being the case, and there can be no doubt that many losses are annually sustained by those men who are led away by every new idea which they either hear or read of. I need not say that this is a state of matters deeply to be regretted by all those who interest themselves in rural affairs, and a remedy against it is earnestly to be sought for. I feel convinced, therefore, that

my readers will excuse my allotting a short space to the consideration of a subject at once so interesting and important. First, let me warn all practical men from coming to too hasty a conclusion as to the value or inutility of any published improvement; for there can be no doubt that much harm has been done to the advancement both of scientific and practical agriculture, by the publication of different methods of cultivation before their value has been sufficiently ascertained; and also by persons adopting improvements, which have been well examined into, but at the same time endeavoring to put them into practice themselves, when from ignorance of the sciences on which their success depends, they are totally incapable of giving them a fair chance.

Secondly. Many men investigate various branches of this art, and come to valuable conclusions, but from the same circumstance as the one above mentioned, they are either totally incapable of communicating their discovery to the world; or if they publish at all, many circumstances escape their notice, which, if not accurately known and attended to, may be the cause of the most direful results to those who attempt to adopt the same practice. This I shall be able to make more intelligable by means of an example. Let us suppose a case. A farmer, who is well acquainted with the external characters of soil, but totally ignorant of *chemistry*, is extensively engaged in practice, and finds that some sandy soil of his is so loose and hungry, that the crops on that part of his farm are never good; he naturally asks himself, how shall I remedy this? He looks into some treatise on agriculture, and finds that *the texture and fertility of light and hungry soils are much improved by a good dressing of rich clay marl.* He, of course, at once proceeds to look for clay-marl; he finds it, and applies it largely to his land; the next year he finds that his crops are most wonderfully improved, in fact are better probably than all the rest on his farm, and in the fulness of his joy he informs all his friends, that of all the applications to bad sandy soil clay-marl is the best. Well, but let us suppose further, that from some circumstance or another he is obliged to change his residence; on his new farm he finds precisely the same kind of soil as on the last, and he likewise meets with clay-marl to all appearance similar to the former. He of course applies it, and sows his oats or turneps, or whatever crop he chooses, with the full assurance that he has performed a cure; but to his great astonishment and dismay his crops totally fail, and it requires years for the land to regain even its original state of fertility. Now such a case might easily occur, for it is a well known fact that some marls are most destructive to fertility, unless frequently turned and freely exposed to the air before they are used, while others may be applied directly; and it is equally clear, that chemical analysis is the readiest, if not the only way of distinguishing them from one another. Similar cases might be mentioned with reference to lime, as it is well known that the *magnesian* limestone, if applied recent, is most injurious to vegetation, and in this instance, as with the marl, chemical analysis is the easiest and surest method of detecting the presence of the enemy.

Thirdly. Scientific men are apt to trust too much to their own abilities, and to conceive that they can sit in their closets and write upon agricultural matters, and publish new schemes of improvement, without once attempting to put them into practice themselves. I need hardly say that such a procedure is sure to be the cause of failure and disappointment to those who follow the distates of such men. Nor will it less certainly tend to bring distrust upon science in general, and in this manner many clever well-meaning men have actually done more harm than good by their writings.

Fourthly. Practical men, who having an inclination for philosophical research, but still are not possessed of sufficient leisure time to study the subject thoroughly, frequently endeavor to adopt scientific language in their writings, but from their own ignorance, speak so loosely and confusedly, that should any one who truly understands the matter meet with their writings, he will be apt to regard them rather as the speculations of a visionary than the productions of a sound reasoner and able experimentalist.

Fifthly. Many of the poorer classes of farmers, both from the remoteness of their dwellings, and the deficiency of their means, are unable to hear what is going on around them, except through the medium of newspapers and market-day gossip, neither of which sources of information are well calculated to be implicitly trust-worthy; for the first, namely, the newspapers, are unfortunately too often made the unwitting propagators of the most incorrect statements; and in the second case, viz. by conversation, amid the bustle of buying and selling, the old adage of "a tale never loses by telling," is much too notorious to require repetition.

And, *lastly*, the same class of farmers, however willing they may be to improve their farms, are frequently prevented from doing so for the want of the co-opertion of their landlords. Many other reasons might be brought forward on the subject, but I shall not occupy the time of my reader by being needlessly prolix.

I have thus given six reasons, which tend greatly to deter the improvement of agriculture in this country; the important question, therefore, comes to be, is there any manner of overcoming these? After having maturely considered this subject, I have come to the conclusion that, in the present state of things, it appears perfectly impossible; but, nevertheless, I think that such an alteration might be made, which would at once do away with all the objections, and at the same time tend greatly to advance agriculture as a science. The method I should propose is the following:—The agricultural districts of the three kingdoms might be divided into sections, and the farmers of each section might by subscribing together (which would be a mere mite to each) raise an annuity sufficient to support a superintendent, whose duty it should be to make himself thoroughly acquainted with all the newest published facts, in order to promote the agricultural interests of his section; that this person should dwell in some central situation, in order that he might make a survey of all the farms in his district at least once a year; that he should be intimately acquainted not only with practical and scientific agriculture, but with chemistry, geology, natural and mechanical philosophy, meteorology, natural history, and botany; by means of which qualifications he would be enabled to make himself useful in all cases of difficulty which occurred in his district. In this manner all new improvements would be immediately ascertained, and thoroughly investigated by scientific men; and might be made public in the pages of this journal, and the whole country would therefore feel at once the benefit of all discoveries; besides, the agricultural youth would be thus enabled to receive a much more perfect education than can be obtained at present, except at a great expense. Should this scheme meet with the approval of any of those more immediately connected with the matter, I shall be most happy to enter at large upon the subject, and to state many minutiæ which would be very much out of place here. I shall, therefore, say nothing further at present, but proceed at once to the more immediate matter of the paper.

"Agricultural Chemistry," remaks Sir Humphrey Davy, "has for its objects all those changes in the arrangements of matter connected with growth and nourishment of plants, the comparative values of produce as food, the constitution of soils, and the manner in which lands are enriched by manure, or rendered fertile by different processes of cultivation." Taking this as my text, I shall endeavor, in the first place, to point out the great extent of the science, and its evident importance to the farmer. From the sentence above quoted, it is evident that the illustrious author includes under the title of Agricultural Chemistry, part at least of the following sciences:—Chemistry, geology, vegetable physiology, and scientific agriculture; in fact, he intends the science to embrace all the circumstances connected with the preparation of the soil, from the most barren earth to the richest loam; all the changes which take place from the sowing of the seed to to the maturity of the crop; and likewise an investigation into all the economical properties of the plants themselves. Now taking this view of the matter, I cannot conceive that any farmer will presume to question its utility.

Let us commence, therefore, the arduous undertaking of giving a condensed view of so extensive a subject, and since there is no doubt that the science is as yet in its infancy, this sketch will of course be very imperfect; I shall strive, however, to collect together as many facts as possible, and likewise to point out, as far as is in my power, what researches should be most carefully pursued in order to extend our knowledge in this important branch of learning. *Soil*, in a chemical point of view, is found to consist of very few substances, the chief of which are, *silica*, or the matter of flints; *alumina*, or pure clay; *chalk*; a small portion of *iron*; and sometimes *magnesia*. These substances appear very seldom to be untited chemically, but are in general mere mechanical mixtures. In addition, all soils which are not absolutely barren, contain organic matter, derived both from the animal and vegetable kingdoms; these together with iron, evidently give the color to soil, since the other ingredients, namely, *silica*, *alumina*, *carbonate of lime* (*chalk*,) and *magnesia*, are when pure perfectly white. I do not intend entering here upon a long account of the chemical properties of these various substances, as I conceive that it is not a subject likely to interest at least the generality of the readers of this Journal; their mechanical properties, however, are so intimately connected with the value of the soils they compose, that it is absolutely necessary to have a clear understanding of them before we proceed further.

Silica, or in strict chemical language *silicic acid*, (for all its relations are those of an acid,) is one of the most abundant products in nature, there being hardly a piece of earth, pebble, or rock to be met with, which does not contain it in greater or less quantity. It exists in a tolerable state of purity in sea and river sand, and is found nearly chemically pure in *rock crystal*. When prepared in the laboratory of the chemist, it is generally obtained in the form of a light dry powder of snowy-whiteness, which, however, feels gritty between the fingers; it is possessed of neither taste nor smell, and except under peculiar circumstances is totally insoluble in water. Particles of silica even when moistened, cannot be made to adhere together so as to form a plastic mass; on which account all siliceous or sandy soils, whether wet or dry, are always loose.

Alumina, in point of frequency, stands next to silica; it is found nearly pure in nature in the *ruby* and *sapphire*, two of the most beautiful gems we possess. To one unacquainted with chemistry I have no doubt that it will appear extraordinary, that the most precious ruby should be composed of the same substance as a common *tobacco pipe*, but nevertheless such is actually the case. This earth when prepared by the chemist exists in two distinct forms, the one a light dry powder not unlike the last, the other combined with water, in which case it forms a white gelatinous mass similar to thick starch. In soils this substance never occurs uncombined with water, and consequently its particles always adhere together; hence clayey soils are at all times cohesive.

Carbonate of lime or *chalk* is by no means so common as the two former ingredients, but nevertheless there are few soils which absolutely want it. In nature, it is found nearly pure in the form of *Iceland spar*, *white marble*, &c. The substance absorbs water, and retains it, without however becoming cohesive in any great degree; on this account, lime may be used to increase the friability of stiff clays, without at the same time diminishing their power of absorbing moisture, and also, it is pre-eminently useful to increase the absorbent powers of sandy soils, without altering their texture. This substance is composed of the well-known body *lime*, combined with a gas named *carbonic acid*, or that gas which forms the *choke-damp* of miners. When *chalk* is exposed to heat, as in a lime-kiln, it loses this gas, and is then reduced to the state of *pure lime*, the characters of which substance are much too familliar to require any detailed description. I need only mention, that so great is the attraction between lime and carbonic acid, that they cannot come in contact without uniting; and since this gas always exist in the atmosphere, lime cannot be exposed for any length of time without being reconverted into chalk, which change is well known to agriculturists, and is explained in general terms by saying that *hot* lime becomes *mild* by exposure.

Magnesia exists in some soils only, and the few remarks which it will be necessary to make concerning it, as they refer entirely to its effects on vegetation, will be better understood when treating of mineral manures.

Iron exists in the soil in the state of an *oxide*, or the metal united with that elementary body, distingushed by chemists by the name of *oxygen* or *pure air*. The metal, combined with this gas, forms the familliar substance *rust*, which is actually the state in which it exists in almost all soils. This substance, however, never occurs in any considerable quantity in fertile soils. In this natural state it is insoluble in water; it is however frequently, when rendered soluble by means of acids, the cause of sterility.

Organic matter exists in soils in various proportions, from a mere trace, as in the almost barren sands, to upwards of 90 per cent., as in peat. But it may be in such a state as to be absolutely injurious to vegetation, instead of useful. The examination of the point, in what state the organic matter of soil must be, to become available as food for plants, will be much better considered afterwards.

Having now given a brief sketch of the various substances contained in soil, I shall proceed to examine the various forms under which soil appears, according to the proportion in which these ingredients exist; or, in other words, I shall consider the classification of soils.

First, however, let us shortly consider the question—what is the origin of soil? How was it first produced? This is a point on which there is but little difference of opinion, by far the most general belief being, that soil is formed by the gradual distintegration or powdering of the rocks in the neighborhood, and mixing with them all the vegetable remains which have been produced by the decomposition of the different generations of plants, which have grown there since the beginning of vegetable existence. Now, as far as regards sandy and gravelly soils, I have no doubt that the statement is correct; but the remarks which I have made, in reference to alumina, will, I think, point out sufficiently clearly, that these soils at least derive their origin from water. For, since all the alumina in soil is *combined with water*, and that of most rocks is *deprived* of that substance; and since, moreover, it has hitherto baffled all the attempts of chemists to make the *dry* alumina unite with water, except through the medium of some chemical solvent, it is perfectly clear that those rocks only could yield clayey soils which contain the clay already in the form of a *hydrate*. Again, the *situation* of such soils, namely, carses and the flat banks of rivers, seem to favor this opinion. Be this, however, as it may, the chief thing which interests us is the fact, that soils are naturally divided into clays and sands. To give particular descriptions of these would be superfluous, but

still a few words must be said, in order that my readers may know exactly what terms I apply to the different kinds of soil; these terms are nearly the same as those used in Low's Practical Agriculture. First, then, soils may be divided, according to their texture, into stiff or heavy, and light or loose; according to fertility, into rich and poor; and, with reference to moisture, into wet and dry. These different genera of soils have been divided into numerous species and varieties; but, however interesting these may be to scientific agriculturists, they are not of any very great importance to those engaged in practice. The following will, I think, comprehend all the varieties which it will be necessary to remember.

I. *Clayey Soils.*

1. Stiff cold clay; including the poor, uncultivated soils of this nature, consisting nearly of pure clay.

2. Clay loams; including all the richer clays, and of course, having a due admixture of silica.

II. *Sandy Soils.*

1. Loose and hungry siliceous sands; including all the poorest kinds of sand, containing little or no alumina.

2. Poor calcareous sands; comprising those which have a considerable quantity of calcareous matter, but little alumina.

3. Rich sandy loams; comprising all the fertile soils of that consistence, which contain a certain proportion of alumina, and are seldom without calcareous matter.

I have not denominated any of these soils wet or dry, as I think it is very apt to lead to confusion; for it is self-evident that, were this dependent upon the soils themselves the clays would be wet and the sands dry, whereas, in many cases, the exact reverse occurs; and, consequently, I consider it better to name the soils after those chemical constituents which they possess, independent of any extraneous circumstances. Were it not liable to this objection, therefore, it is clear, that all the species of soil here enumerated might be further divided into wet and dry, as poor wet and calcareous sand, poor dry calcareous sand, &c. In this account, I do not pretend to enter into particulars, as the characters of soil are amply described in all works on agriculture. With regard to subsoils, I shall say nothing at present, as this will come to be considered when I am speaking of draining; suffice it therefore for the present to remark, that, according to whether the subsoil is retentive or loose, so the soil resting on it is wet or dry. I shall also say nothing about the natural produce of the different soils, until I come to treat of agricultural weeds. Let us, therefore, proceed at once to consider, what is necessary in soil to fit it for maintaining vegetable life. This, of course, will lead us first to treat of the food of plants. But since I have already extended this paper to considerable length, I must defer my remarks on this subject until the publication of the next number of this journal.

A Hint to Farmers.

It is a glory to a man to honor his occupation. If it be a lawful one and well followed, it should be his pride to avow and defend it—such an one is that of the farmer. He is lord of the *land*, and on it he should walk erect, conscious of his own dignity. Clad in homespun with sun browned complexion, and toil-hardened hands he need not feel diminutive in the presence of any one, nor envy the white glove and the broad-cloth, nor once desire to exchange the farm whip for the walking stick. These symbols of inutility he might have if he choose, but they would only hide what should be his greatest glory, the sign of his occupation, his industry, his usefulness. We would by no means recommend to the unassuming class of which we are speaking, a haughty address in their intercourse with society, but we would recommend to them a significant contempt of such an address whenever met with by them. These are certainly rather trifling matters considering to whom they are addressed, but they are just as important as what engrosses the attention at least one half of the world.

We would also here suggest, that every thing almost is carried by a social influence, that great advantages are derived from it, and the propriety of farmers, as a class availing themselves of this influence equally with other classes. Let Agricultural Societies be general, and their meetings frequent and matters of interest, as they surely are to every farmer. Let Agricultural Journals be patronized as well for their tendency to maintain the farmers' just rights, and elevate in public estimation this down trodden class, as for the valuable information they contain.

The present is an era of publication, of books, newspapers, periodicals, pamphlets, tracts, reviews, &c. on all subjects which the mind of man can investigate—it is an intellectual era in which the power of mind works miracles upon the objects of her research—and shall not the farmer step in for his share of influence and benefit, amidst all this wonder working machinery? Shall he be jostled from his proper position, on this great arena by those that are more assuming, but less worthy and useful? Surely he will be unless he stand up and defend his rights—unless the strech out his muscular arm, and consign the hosts of nervous aspirants that have supplanted him *down* to their proper position—No! let him rather *rise* above them. When the farmer shall do this; when he shall claim for his occupation the first place in our Schools, Academies and Colleges; when he shall as a class unite the power of an active mind with that of a vigorous body—then will he rise to his proper rank in society, *and not till then.—Cheshire Farmer.*

MARRIED—At Friends' Meeting-House in Ledyard, Cayuga county, Aug. 23, JOHN J. THOMAS, [J. J. T. of this paper] of Macedon, Wayne county, to MARY S. HOWLAND, daughter of Humphrey Howland, Esq. of the former place.

MULBERRY TREES.

200,000 GENUINE Mulberry Trees, and as many more as may be wanted, of the most approved kinds—consisting of the best selected varieties now in use for cultivation, feeding worms, and making silk; being acclimated to this country, and adapted to either warm or cold climates, affording a rare opportunity for Companies or individuals to be supplied, from the most extensive collection of Mulberry trees ever seen in any village within the United States.

Autumn is decidedly the best time for removal, and orders left with

Messrs. I. B. Colt, Sec'y of the Connecticut Silk Manufacturing Company, Hartford; Alonzo Wakeman, at the office of the American Institute, No. 187 Broadway, N. Y.; Thomas Lloyd, Jr. No. 236 Filbert street, Philadelphia, Pa.; Luther I. Cox, Baltimore, Md.; B. Snider & Co. Savannah, Ga; Bliss, Jenkins & Co. Mobile, Al.; James Lyman, St. Louis, Mo.; Case & Judd, Columbus, O.; G. Harwood, Rochester, N. Y.; and the publishers of this advertisement, or with the subscriber, in Northampton, Mass.

Orders left with the above gentlemen will be promptly attended to, and each will be furnished with samples of the foliage.

Several valuable farms may be had with or without Mulberry Plantations. Apply at the office of

D. STEBBINS.

Notrhampton, Sept. 1, 1838.–10t*

SHEEP.

FOR SALE, at a bargain, to close a concern, a small flock of pure old fashioned Merino Ewes; also, a few pure Bakewell Ewes, and a mixed flock of South Down, Merino, and Bakewell.

Buffalo, Sept. 1, 1838.–w4m1 A. B. ALLEN.

Sale of Impoved New Leicester Sheep.

40 EWES and RAMS of this celebrated breed will be *Sold by Auction* at the old Norton Farm, East Bloomfield, 5 miles west of Canandaigua, Ontario Co. N. Y., on Wednesday, the 17th of October next; some of which are of those imported in 1834, and the remainder from the said stock breed upon the farm of their present owner: by whom the former were selected from the flocks of the most ancient breeders in England. They will be sold without reserve, either singly or in such lots as purchasers may wish. Liberal credit will be given on approved notes or good security.

September 1, 1838. THOMAS WEDDLE.

SAXONY SHEEP FOR SALE.

40 RAMS & 60 Ewes of the pure Electoral Saxon Race. The subscriber imported 100 yearling Ewes and a number of Rams in 1827 which were selected by himself from the purest race in Saxony, and with which he commenced his flock, and not only mantained them in all their purity of blood, but improved them in size, symmetry of form, and quantity and quality of wool. The above number of Ewes will either be sold or let for a term of years, and can be increased to 75 or 80 if desired.

H. D. GROVE,

Buskirks Bridge Post Office, Washington Co. N.Y.

August 25, 1538–3m*

Silk Business.

PERSONS who intend doing an extensive business next year with the Mulberries, can be supplied with the *true genuine Morus multicaulis* trees and cuttings, by sending in their orders early. Companies that wish to contract for large quantities, can be supplied on reasonable terms. The trees are to be well packed, so as to be sent to any part of the United States, and delivered this fall. The subscriber has been extensively engaged in the culture of silk for some years, particularly to the production of the Morus multicaulis; and will be hapyy to give any information respecting the tree or feeding the worm that may be required—silk, worm eggs, &c.

All letters will meet with immediate attention if assigned to EDWARD H. ARNOLD.

Burlington, New Jersey.

N. B. As orders are coming in now, it would be well for those in want to apply early. Aug. 1838.–3m*

Imported Sheep for Sale.

TO be sold, ten Leicester Bucks. These animals were selected from some of the best flocks in England, and imported last year by their present owner. Also, an imported Devon Bull. Apply to

JOHN COWLEN,

Aug. 4, 1838.–3t *Truxton, Cortland Co., N. Y.*

New Arrival of Turnep Seeds.

WE have just received from England a large additiona supply of TURNEP SEEDS, among which are the following kinds:

Ruta Baga, or Yellow Sweedish,
Dale's Yellow Hybrid,
Yellow Bullock, Yellow Scotch,
Yellow Aberdeen, Red Round,
White Globe or Flat,
White Norfolk, Long Tankard,
Early White Flat Dutch,
White Stone, Yellow Stone,
Yellow Malta, Yellow Dutch.

☞ See descriptive list on page 198, current vol. Genesee Farmer. REYNOLDS & BATEHAM.

Rochester Seed Store, June 23, 1838.

Farmers' Books.

NOTICES on the Sugar Beet, containing a description of the culture and preservation of the plant; also explanations of the process of extracting its Sugar. Price 25 cts.

A Manual of the art of making and refining sugar from Beets. Price 75 cents.

Cobb's Manual on the Culture of Silk.
Chaptal's Agricultural Chemistry.
The Complete Farmer, by Fessenden.
Fessenden's American Gardener.
A Guide to Orchardists.
Smith's Treatise on the Honey Bee.
A Treatise on Cattle.
Mason's Farriery.
Barnum's American Farriery.
Vols. 1st and 4th, Genesee Farmer, bound.

For sale by D. HOYT,

Rochester, May 26, 1838. Bookseller, 6 State st.

Fruit Trees for Sale.

THE subscriber respectfully informs his friends and the public, that he has for sale at his Nursery in Rochester, Monroe county, state of New-York, a large quantity of Fruit Trees, grafted and inoculated with the most approved kinds, now fit for transplanting, which he will sell on the most reasonable terms. SAMUEL MOULSON.

April 15, 1838.

N. B. CASH will be paid for a few thousand two years old APPLE TREES.

Monroe Horticultural Garden & Nurseries, Greece, Monroe County, N. Y.

THIS establishment now comprises over 20 acres, covered compactly with Trees and Plants in the different stages of their growth.

The subscriber offers to the public a choice selection of Fruit Trees, of French, German, English and American varieties, consisting of Apples, Pears, Plums, Peaches, Cherries, Apricots, Nectarines, Quinces, Currants, Gooseberries, Raspberries, Grape Vines, Strawberries, Ornamental Trees, Shrubs, Plants, Hardy Roses, Vines, Creepers, Herbaceous Perennial Plants, Bulbous Roots, Splendid Pæonies, Double Dahlias, &c. &c.

Also, a large collection of Green-House Plants, of choice and select varieties, in good condition.

Orders respectfully solicited. Trees and Plants, when ordered, are carefully selected and faithfully packed, and if desired, delivered on the Canal, one mile from the Nursery, or at Rochester.

Orders for Mr. Rowe's Nursery received by the publisher of this paper.

Catalogues will be sent to every applicant, gratis, or may be had by calling at the office of the Genesee Farmer.

April 1, 1838. ASA ROWE.

ELECTION NOTICE.—*Sheriff's Office, Monroe County, Rochester, July 19th,* 1838.—A general election is to be held in the county of Monroe, on the 5th, 6th and 7th days of November next, at which will be chosen the officers mentioned in the notice from the Secretary of State, of which a copy is annexed.

DARIUS PERRIN, *Sheriff.*

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State of New-York, Secretary's Office, Albany, July 16th, 1838.—SIR: I hereby give you notice, that at the next General Election in this State, to be held on the 5th, 6th and 7th days of November next, a Governor and Lieutenant Governor are to be elected.

I also give you notice, that a Senator is to be chosen in the Eighth Senate District, in the place of Isaac Lacy, whose term of office will expire on the last day of December. JOHN A DIX, *Secretary of State.*

To the Sheriff of Monroe county.

N. B. The Inspectors of Election in the several towns in your county, will give notice of the Election of a Representative to Congress from the 28th Congressional District. They will also give notice of the Election of Members of Assembly, and for filling any vacancies in county officers which may exist. July 28, 1838.